

Addition/Correction to "Total Synthesis of Rubriflordilactone A"

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During the preparation of a full paper on the rubriflordilactone A synthesis, we found that the optical rotation of our synthetic rubriflordilactone A $\{[\alpha]_D^{24} = -39.8$ ($c = 0.01$ in MeOH) $\}$ reported in the Communication is incorrect, perhaps due to the error at low concentration¹ of the material used for our original measurement. We re-measured the optional rotation at a concentration similar to that used for the measurement described in the isolation report $\{[\alpha]_D^{25.7} = -58.07$ ($c = 0.114$ in MeOH) $\}$ ² and obtained a result of $[\alpha]_D^{24} = +51.4$ ($c = 0.081$ in MeOH). This result was confirmed by our repeated independent measurements. It should be mentioned that the absolute configurations of all synthetic compounds in our communication remain unaffected, because they are established on the basis of heavy-atom X-ray crystallographic analysis and well-precedented asymmetric reactions.

We synthesized ca. 50 mg of the enantiomer of the original synthetic sample, through the same route but with enantiomerically opposite Corey–Bakshi–Shibata oxazaborolidine and Ishihara bis-oxazoline ligand. For this synthetic compound, $[\alpha]_D^{24} = -50.8$ ($c = 0.080$ in MeOH). This result is in a good agreement with that reported in the isolation report $\{[\alpha]_D^{25.7} = -58.07$ ($c = 0.114$ in MeOH) $\}$. Based on these results, the synthetic structure reported in our Communication should represent the enantiomer of the natural sample, and the newly synthesized structure should represent the natural product. However, we are cautious about the revising the absolute configuration of the naturally occurring rubriflordilactone A, because the absolute stereochemistry of the left-hand-side region of the *Schisandraceae* triterpenoid family is conserved.³ Unfortunately, the authentic sample of rubriflordilactone A decomposed and cannot be used as a reference, according to the isolation team.

We mixed the two synthetic enantiomers in a ratio of 1:1 and subjected the mixture to analytical HPLC with chiral columns for separation. The following conditions were identified: Lux Cellulose-4 column (0.46 cm \times 25 cm), MeCN:water = 75:25, 0.7 mL/min, 20 °C, t_R [(+)-rubriflordilactone A] = 7.569 min, t_R [(-)-rubriflordilactone A] = 7.922 min; or CHIRALPAK ID column (5 μ m \times 15 cm), MeCN:water (containing 1 wt% of HCO₂H) = 50:50, 0.4 mL/min, 25 °C, t_R [(+)-rubriflordilactone A] = 24.132 min, t_R [(-)-rubriflordilactone A] = 28.509 min. Based on these conditions and both synthetic enantiomers as references, a trace amount of authentic sample of rubriflordilactone A is adequate for unambiguously determining the absolute configuration. However, this has to rely on the re-isolation of the natural product in the current circumstance.

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